originate by the sudden release of air under pressure in the mouth cavity, the number depending upon the amount of force with which it is released, and hence largely proportionate to the manner of pronouncing and to the sharpness of consonant formation. Loudness and rapidity have but little influence; indeed, whispering may, under some conditions, cause a greater number of droplets than loud speech. Even with subdued speech and a quiet atmosphere, it was found that the organisms expelled penetrated into the farthest parts of the room, which was over twenty feet in width, and not alone forward, but sideways and backward from the speaker. The bacteria were found not to remain in supension in the air longer than an hour, and it was noticed that they fell upon the plates in groups, sometimes as many as forty close together. This suggests that the bacteria in the droplets do not fall as dry dust particles, but that the droplets themselves, with their contained or adherent organisms, are deposited. The *B mycoides*, which is larger than *B. prodigiosus*, was conveyed through much shorter distances and remained in suspension a much shorter time. In coughing and sneezing, more droplets are expelled than in speaking, and they are thrown to a greater distance, because of the greater amount of force employed.

The danger of infection through droplets can be prevented in great part by holding the hand or a handkerchief before the mouth while sneezing or coughing. Speaking should be restricted as much as possible, and in especially serious conditions the use of gauze veils before the mouth may be advised. Thus the air itself and all objects in the vicinity of the patient will be protected from infection. The precautions mentioned apply not alone to tuberculosis, but to diphtheria, whooping-cough, and other diseases, the organisms of which are found in the air-passages.

The Toxin of the Colon Bacillus.—Since the discovery by PROFESSOR V. C. VAUGHAN and McCLYMONDS that practically all samples of American cheese contain the colon bacillus and that cultures of this organism may be boiled without destroying its toxicity, work on its toxin has been carried further by the former (*American Medicine*, May 18, 1901, p. 302), assisted by Cooley and Gelston. The bacilli with which they worked were obtained from cheese, water, and normal feces, and their virulence was intensified by passage through a number of animals. After inoculation of Roux flasks of 2 per cent. agar with a beef-tea culture of the bacillus and subsequent incubation, the growths were scraped from the surface of the agar and used in the preparation of the toxin. The facts learned from numerous experiments with the germ substance thus obtained are summed up as follows: The toxin is contained within the germ-cell, from which it does not, at least under ordinary conditions, diffuse into the culture medium. It is not extracted from the cell by alcohol, ether, or very dilute alkalies, nor is it destroyed when the germ-substance is heated to a high temperature with water. Neither the germ-cell nor its toxin is much, if at all, affected by boiling with a 2 per cent. solution of hydrochloric acid, but the former is broken up and the latter affected, but not destroyed, by being heated for an hour on the water-bath with water containing from 1 to 5 per cent. of the acid, and the toxin is made inert by prolonged heating. The toxin, separated from the cell wall by digestion of the latter with 2 per cent. hydrochloric acid and 0.5 per cent. pepsin, is markedly active and stable, and can be permanently preserved in the dry state.

How the toxin, if confined in the cell wall, is set free when the living or dead germ is introduced into an animal; whether, if this is accomplished by phagocytic action, the phagocytes destroy the toxin when they kill the germ; whether the cell contains both a toxin and an immunizing body, or the toxin can be converted by artificial means or within the system into an immunizing body, are questions under investigation.

Hydrocyanic Acid Gas as a Disinfectant.—In a preliminary note on the disinfectant properties of hydrocyanic gas, DR. J. S. FULTON (*American Medicine*, May 11, 1901, p. 256) gives the results of a number of experiments and suggests this agent as a reliable germicide for the disinfection of houses and ships. With regard to the feeling of danger which its employment in public health work might excite, attention is called to the extensive use of potassium cyanide in the industrial arts and of the gas in the disinfection of nursery stock and green-houses, with practically no record of accidents. Against organisms no hardier than those of diphtheria and typhoid fever it appears to be about as effective as formaldehyde, though more gas is needed and perhaps a longer exposure. Like other gaseous agents, it possesses no marked power of penetration. In the experiments iron wire, wet, was attacked by the gas and received a thin coat of Prussian blue; paper labels were stained brown; and cotton, exposed several times, became brown and brittle. The gas is best generated by the action of dilute sulphuric acid (acid 1.5 part, water 2.25 parts) on potassium cyanide (1 part), the contact taking place in earthen jars. About 1 kilogramme of cyanide is required for each 1000 cubic feet of air space. The poisonous properties of the gas make it necessary to exercise caution in its use and to ventilate well on the expiration of the period of exposure.

[In view of the greater cost of material for the disinfection of a given place, the possible danger attending its use, and the admitted inferiority to formaldehyde as a general germicide, it would appear that the only advantage attending its use is its superior toxicity to animal life, on which account, as the author points out, it has been extensively used in flouring-mills (weevils), railway cars (bed-bugs), tobacco warehouses (insects in general), and might be very useful for killing rats and other vermin in ships' holds.—C. H.]

Notice to Contributors.—All communications intended for insertion in the Original Department of this Journal are received only *with the distinct understanding that they are contributed exclusively to this Journal.*

Contributions from abroad written in a foreign language, if on examination they are found desirable for this Journal, will be translated at its expense.

Liberal compensation is made for articles used. A limited number of reprints in pamphlet form will, if desired, be furnished to authors in lieu of compensation, *provided the request for them be written on the manuscript.*

All communications should be addressed to

DR. FRANCIS R. PACKARD, 1831 Chestnut Street, Philadelphia, U. S. A.
Or
DR. HECTOR MACKENZIE, 34 Upper Brook Street, Grosvenor Square, London, W., England.